

**International Blood Group
Reference Laboratory**500 North Bristol Park
Northway
Filton
Bristol
BS34 7QH**Antigen** Glycophorin C (cytoplasmic domain) / CD 236R**Clone** BGRL 100**Product Code** 9416**Immunoglobulin Class** Mouse IgG1, kappa light chain**Protein Development
and Production Unit****Tel:** +44 (0)117 921 7500**Fax:** +44 (0)117 912 5796**Website:** <http://ibgri.blood.co.uk>**Email:** enquiries.IBGRL@nhsbt.nhs.uk**Antigen Description and Distribution**

Glycophorin C (GPC, sialoglycoprotein β , glycoconnectin) and glycophorin D (GPD, sialoglycoprotein σ) are closely related erythrocyte transmembraneous glycoproteins, which are products of the same glycophorin C gene¹. The GPC (Mr 40K) amino acid sequence consists of 128 amino acids which traverses the bilayer once. GPC has three domains: (i) a glycosylated N-terminal extracellular domain (residues 1-57) containing about 12 O-glycans and 1 N-glycan; (ii) a hydrophobic intramembraneous domain (58-81) which spans the lipid bilayer; and (iii) a C-terminal cytoplasmic domain (82-128). GPD is identical to GPC but lacks the first 21 NH₂-terminal amino acid residues^{2,3}. GPC is coded on chromosome 2q14-q21. The functional role of GPC and GPD is in the regulation of shape and membrane mechanical properties of the red cell through the interaction of their cytoplasmic domains with membrane protein 4.1 within the cytoskeleton network². GPC carries the Gerbich blood group antigens². GPC is deficient in erythrocytes of the Leach type of Gerbich negative. The other types of Gerbich negative, Gerbich type and Yus type, have altered forms of GPC. Rare individuals of the Leach phenotype lacking GPC and GPD have elliptocytic red cells². GPC expression is not confined to erythroid cells³ as GPC has a fairly broad distribution in both erythroid and non-erythroid tissues⁴. Previously 50-100,000 copies of GPC per red cell were estimated. By the use of Fab fragments of monoclonal antibodies, the number of molecules per red cell has been estimated at 143,000⁵.

Clone

BGRL 100 was produced by immunization of a mouse with a synthetic peptide comprising of 17 amino acid residues within the cytoplasmic C-terminal domain. It reacts with both GPC and GPD on immunoblotting and in immunoprecipitation^{6,7} and is suitable for immunocytochemistry⁷.

References

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